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PROPOSAL SORTED ACCORDING TO PHYSICS TOPICS

(Through Proposal No. 110)

J. R. Sanford and A. Roberts

National Accelerator Laboratory

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CONTENTS

Cross Reference Index

Proposal #	Name	Category
1-A	D. Cline	III-A
2-A	G. A. Snow	II-B
3	P. H. Eberhard	VI
4	M. J. Longo	I-H
5	M. Perl	VIII
6	A. D. Krisch	I-C
7	D. Meyer	I-C
8	L. G. Pondrom	I-F
9	M. L. Stevenson	III-B
10	W. F. Baker	I-B
11-A	Y. S. Kim	I-A
12	N. W. Reay	I-H
13	T. Bowen	I-G
14	P. Franzini	I-D
15	J. Steinberger	V
16	L. T. Kerth	I-C
17	B. G. Reynolds	II-A
18	G. K. O'Neill	I-D
19	D. R. Tompkins	VI
20	M. M. Block	III-B
21	B. Barish	III-A
22	G. B. Collins	VI
23	J. E. Rothberg	I-D
24	D. O. Caldwell	VII
25	D. O. Caldwell	VII
26	K. W. Chen	VIII
27	J. Rosen	V
28	W. Fry	III-B
29	R. Wilson	VIII
30	T. B. W. Kirk	V
31	M. Derrick	III-B
32	R. Hofstadter	I-G
33	L. W. Mo	VIII
34	R. W. Huggett	I-G
35	D. McLeod	I-E
36	R. A. Carrigan	I-C
37	E. Malamud	II-A
38	J. Walker	III-A
39	W. D. Walker	II-B
40	R. B. Willman	II-A
41	V. Barnes	II-A
42	A. Garfinkel	III-B
43	D. H. Miller	I-E
44	B. Roe	III-B
45	F. Nezrick	III-B
46	F. R. Huson	II-A
47	I. Pless	II-B
48	R. K. Adair	I-A
49	J. A. Poirier	VII
50	J. Orear	I-C
51	M. Gettner	I-E
52	H. Weissberg	I-E
53	C. Baltay	III-B
54	J. Pine	I-E
55	A. V. Tollestrup	I-D

Proposal #	Name	Category
56	R. L. Cool	I-B
57	S. J. Lindenbaum	I-B
58	R. S. Panvini	II-A
59	L. Holloway	I-E
60	A. Wattenberg	V
61	T. B. Novey	I-C
62	J. VanderVelde	II-B
63	J. Walker	I-A
64	A. L. Read	I-D
65	K-W. Lai	II-A
66	J. VanderVelde	II-B
67	B. Maglic	I-D
68	H. L. Anderson	I-D
69-A	J. Lach	I-C
70	L. M. Lederman	I-A
71	D. Drickey	VII
72	R. K. Adair	I-A
73	R. L. Anderson	I-C
74	R. L. Fleischer	VI
75	T. Yamanouchi	I-A
76	R. A. Carrigan	VI
77	J. B. Libby	II-A
78	R. A. Burnstein	II-B
79	H. K. Ticho	V
80	T. Ferbel	II-B
81	G. W. Butler	I-E
82	V. Telegdi	V
83	T. Kitagaki	II-A
84	T. Jenkins	I-D
85	L. J. Gutay	II-A
86	H. J. Lubatti	I-E
87	W. Lee	VII
88	V. Hagopian	II-A
89	W. B. Fretter	II-A
90	J. Gierula	IV
91	C-Y. Chien	IV
92	F. Sciulli	III-B
93	M. Wahlig	I-D
94	E. R. Goza	IV
95	B. Cox	I-A
96	D. Ritson	I-I
97	J. Lach	I-F
98	L. W. Mo	VIII
99	R. Diebold	I-I
100	J. W. Cronin	I-A
101	B. Gittelman	VII
102	T. Jenkins	I-D
103	D. T. King	IV
104	W. F. Baker	I-B
105	P. Malhotra	IV
106	D. Miller	I-E
107	K-W. Lai	I-C
108	M. Awschalom	I-A
109	K. P. Pretzl	withdrawn
110	J. Pine	I-E

PROPOSALS SORTED ACCORDING TO PHYSICS TOPICS (Through Proposal No. 110)

I. Hadron Interactions - Counter Experiments

A. Search and Survey

#75 T. Yamanouchi (NAL)

A Proposal to Search for Fractionally Charged Quarks.

Secondary beam search for particles of fractional charge.

#72 R. Adair (Yale, BNL)

Experimental Proposal to NAL: Quark Search.

Secondary beam search for particles of fractional charge.

#11A Y. Kim (Ohio, Ind. State, Rose Polytechnic, Kansas, NAL)

Search for Fast Particles Produced at Large Lab Angles at NAL.

Includes search for tachyons, quarks.

#95 B. Cox (John Hopkins, NAL)

Proposal for Examination of Wide Angle Gamma Rays at NAL.

#108 M. Awschalom (NAL)

A Beam Dump Experiment.

#48 R. Adair (Yale, BNL, Princeton)

A Measurement of the Intensity and Polarization of Muons Produced Directly by the Interactions of Protons with Nuclei.

#70 L. Lederman (Columbia, Harvard, NAL)

Study of Lepton Pairs From Proton-Nuclear Interactions; Search for Intermediate Bosons and Lee-Wick Structure.

#100 J. Cronin (Princeton Univ.)

A Proposal to Study Particle Production at High Transverse Momenta.

#63 J. Walker (NAL)

Survey of Particle Production in Proton Collisions at NAL.

B. Total Cross-Sections.

#10 W. Baker (NAL)

A Proposal to Measure Total Cross Sections for $\pi^{\pm}$, $K^{\pm}$, p, $\bar{p}$.

#56 R. Cool (Rockefeller, BNL)

Measurement of Total Cross Sections on Hydrogen and Deuterium.

#57 S. Lindenbaum (BNL, Yale, NAL)

Behavior of High Energy Elastic Scattering and Total Cross Sections for $\pi^{\pm}$-p, $K^{\pm}$-p, p-p, and p-p.

#104 W. Baker (Rockefeller, BNL, NAL)

Measurement of Total Cross Sections on Hydrogen and Deuterium.

C. Elastic Scattering.

#6 A. Krisch (Mich., NAL)

200-GeV Proton-Proton Elastic Scattering at High Transverse Momentum.

#7 D. Meyer (Mich., ANL, NAL)

A Proposal to Measure $\pi^{\pm}$p and p-p Differential Elastic Scattering Cross Sections From 50 to 170 GeV/c.

#50 J. Orear (Cornell, BNL)

Large Angle $\pi^{\pm}$-P, $K^{\pm}$-P, and $P^{\pm}$-P Elastic Scattering at High Energies.

#69A J. Lach (NAL, Yale)

Elastic Scattering of the Hadrons.

Hyperons and other hadrons, especially in Coulomb interference region. Search for new particles with $\tau \geq 10^{-11}$ sec.

#61 O. Chamberlain (ANL, Harvard, LRL, NW, Wyo., Yale, NAL)

A Proposal to Measure Polarization in pp, π^{-}p, and π^{+}p Elastic Scattering at 50, 100, and 150 GeV/c at the National Accelerator Laboratory.

#36 R. Carrigan (NAL, Rockefeller, Rochester)

A Proposal to Study Small Angle p-p Scattering at Very High Energies.

#73 R. Anderson (SLAC)

Proposal to Measure Two Body Elastic and Quasi-Elastic Scattering at High Energies.

#16 L. T. Kerth (LRL)

P-P Elastic and Inelastic Scattering at Small Momentum Transfer.

#107 K-W Lai (BNL, Purdue Univ.)

Measurements of Elastic, Quasi-Elastic and Some Inelastic Scatterings of Particles (π^+, K^+, p) and Anti-particles (π^-, K^-, $\bar{p}$) on Protons from ~20 to 60 GeV/c.

D. Inelastic Scattering.

#14 P. Franzini (Columbia, SUNY)

Proposal to Study Inelastic High-Energy Proton-Proton Collisions in the Diffractive Region.

#18 G. O'Neill (Princeton, Pabia)

Proposal to Study the Reactions $p + p \rightarrow p + (p + \pi^+ + \pi^-)\ p + (n + \pi^+)$ at 200 and 500 GeV.

#64 A. L. Read (NAL, ANL, Bari, Brown, CERN, Cornell, MIT)

Hadron Spectra From High Energy Proton-Proton Interactions.

Particle production, elastic and inelastic p-p scattering.

#23 J. Rothberg (Wash.)

Inclusive Pion-Proton Scattering.

Study of $\pi + p \rightarrow \pi +$ anything; test scaling law.

#84 T. Jenkins (Case Western Reserve Univ.)

Proposal for an Experiment to Study the Reaction $\pi^-p \rightarrow \pi^0 n$ at 30 to 150 GeV at NAL.

#55 A. Tollestrup (Cal. Tech)

Proposal to Study $\pi^-p \rightarrow \pi^0 n$ and $\pi^-p \rightarrow \eta n$ at High Energy.

#93 M. Wahlig (LRL)

Small-angle Charge Exchange Reactions $\pi^- + p \rightarrow \pi^0 + n$ and $\pi^- + p \rightarrow \eta + n$ from 50 to 200 GeV/c.

#102 T. Jenkins (Case Western Reserve Univ.)

Proposal for an Experiment to Study the Reaction $K^-p \rightarrow \bar{K}^0 n$ at NAL Energies.

#67 B. Maglic (Rutgers, Upsula)

Search for Baryon Resonances Up to 10 GeV Mass Produced in p + p → P + MM with Resolution of ±25 MeV.

#68 H. Anderson (Univ. of Chicago)

Multiparticle Production in π-p Collisions at 100 GeV.

Elastic π-p cross-sections, mesonic missing mass search, particle distribution in mesonic cascades, coherent diffraction; uses UC cyclotron magnet.

E. Multiparticle Inelastic Events.

#43 D. Miller (Purdue)

Proposal to Study Single Meson Production in Meson Nucleon Interactions at 50 and 100 GeV/c.

#59 L. Holloway (Univ. of Ill.)

A Proposal to Study the Reaction $\pi^- p \to \pi^- \pi^+ n$ at the National Accelerator Laboratory.

#51 M. Gettner (Northeastern, SUNY)

Mass Spectrum and Decay Modes for Bosons in the 2.0 to 8.6 GeV/c^2 Mass Range.

#35 D. McLeod (Univ. of Ill) Chicago Circle

A Proposal to Study Resonance Production in $\pi^- p \to X^- p$ at 40 to 80 GeV/c.

#86-A H. Lubatti (Univ. of Wash., ORSAY)

A Proposal to Study Inelastic Diffractive Processes by Observing Coherent Production of Multi-Pion Final States from He Nuclei.

Streamer chamber to be brought to NAL from France.

#52 H. Weisberg (Penn.)

A Proposal to Study Particle Production Spectra and Multiplicities in High Energy Hadron-Hadron Collisions, and for a Beam Survey and Quark Search.

#54 J. Pine (Cal Tech, UCLA, NAL)

Quasi-Two-Body Reactions at 50-200 GeV.

s and t dependence of peripheral processes; search for new meson and baryon resonances; π-π and π-K scattering via pion exchange.

#106 D. Miller (ANL, Michigan State, Northwestern)

Proposal for a Study of Multiparticle Production At NAL Using an Array of Wide-Gap Triggerable Spark Chambers.

#110 J. Pine (Cal Tech, NAL, Northeastern, SUNY, UCLA, Univ. of Ill)

Proposal to Study Multiparticle Peripheral Hadron Physics at NAL.

#81 G. Butler (ANL, BNL, Univ. of Chicago, Carnegie-Mellon, Purdue, St. Univ. of New York Buffalo)

Preliminary Survey of 200 GeV Proton Interactions with Complex Nuclei.

F. Hyperon Interactions

#8 L. Pondrom (Wisc., Mich.)

Experiments in a Neutral Hyperon Beam.

Beam survey; search for $\Delta S=2$ decay; σ_{tot}, $d\sigma$ for $\Lambda\ ^{o}p$, $\bar{\Lambda}^{o}p$ scattering.

#97 J. Lach (NAL, Yale)

Elastic Scattering of the Hyperson.

G. Testing and Calibration

#34 R. Huggett (LSU, Munich)

Nuclear-Electromagnetic Cascade Development Study. (Ionization Spectrometer Development)

#13 T. Bowen (Ariz., NASA, LSU, Munich)

Ionization Spectrometer Development and Calibration.

#32 R. Hofstader (Stanford)

Test and Calibrate a Large NaI(Tl) TANC Detector and to Measure Neutral Hadron Total Cross Sections.

H. Neutron Experiments

#4 M. Longo (Mich., ANL)

Neutron-Proton Diffraction Scattering and Neutron Total Cross-Sections Up to 200 GeV.

#12 N. Reay (Ohio State, Mich. State, Carleton)

A Study of Neutron-Proton Charge-Exchange Scattering in the Momentum Range 50-200 GeV/c.

I. Focusing Spectrometer Facility.

#96 D. Ritson (MIT, NAL, Northeastern, ANL, Bari, Brown, CERN, Cornell, Stanford)

Focusing Spectrometer Facility.

#99 R. Diebold (ANL, Cornell)

A Study of $\pi^+p \to K^+\Sigma^+$ and $\pi^+p \to K^+Y^{*+}$ Using the Focusing Spectrometer Facility.

II. Hadron Interactions - Bubble Chambers

A. Fifteen-Foot Bubble Chamber

#41 V. Barnes (Purdue)

Very High Energy Proton Proton Interactions: Exploratory Survey in a Bubble Chamber.

#37 E. Malamud (NAL, UCLA)

Multibody Final States in pp Collisions Up to 500 GeV.

#46 F. Huson (NAL)

A Study of High Energy π^- Proton Interactions with the NAL 14-Ft. Bubble Chamber.

#89 W. Fretter (LRL)

Interactions of 150 GeV π^- Mesons in a Large NAL Bubble Chamber Filled with H_2-Ne.

#40 R. Willmann (Purdue)

Diffractive Process in π^-p Interactions at 100 GeV/c.

#85 L. Gutay (Purdue)

Proposal for an Exposure of the 15-foot Deuterium Filled Bubble Chamber to a Beam of Separated π^+ Mesons at 40 GeV/c at NAL.

#17 B. Reynolds (Ohio Univ.)

$\bar{p}d$ Interactions from 20 to 60 GeV/c.

Search for departures from OPE in Δ^{++} P production.

#88 V. Hagopian (Florida State Univ.)

NAL Bubble Chamber Proposal Search for Fractionally Charged Particles.

#65 K-W Lai (BNL, Fla. State, Vanderbilt)

KP and $\bar{K}P$ Interactions From ~20-60 GeV/c in a Large Liquid Hydrogen Bubble Chamber.

#83 T. Kitagaki (Tohoku)

Study of the Antiproton Interactions in the NAL Hydrogen Bubble Chamber at Very High Energies- 40-140 GeV.

#58 R. Panvini (BNL, Fla. State, Vanderbilt, Wisc.)

Proposal to Study Multiparticle Production with NAL Bubble Chamber.

Energy dependent survey of pp, πp, Kp, $\bar{p}$p interactions.

#77 L. Libby (Univ. of Colorado)

Proposal to Study High Energy Hyperon Physics at NAL.

B. Second Bubble Chamber (30")

#80 T. Ferbel (Rochester)

General Survey of π^- Interactions in a Hydrogen Bubble Chamber.

#2 G. Snow (Maryland, Mich. State, Iowa State, ANL)

Preliminary Proposal to Study Multiparticle p-p and π^--p Interactions from 75 to 200 GeV/c (and higher momenta as soon as they have become available).

General survey; test of limiting fragmentation and pionization hypotheses; search for high mass bosons (> 3 GeV/c^2). Which BC not specified.

#47 I. Pless (MIT)

Diffraction Dissociation and Elastic Scattering Processes with Incident Protons and Negative Pions in the 200 GeV/c Region.

#62 J. VanderVelde (Michigan)

Study of Multiparticle Production in a Small Bubble Chamber.

Study of final states.

#78 R. Burnstein (Ill. Inst. Tech.)

A Study of Multiparticle p-p π-p Interactions above 50 GeV by Utilizing a Small Bubble Chamber.

#66 J. VanderVelde (Michigan)

Study of Low-Mass Peripheral States in a Small Triggered Bubble Chamber.

#39 W. Walker (Wisc., Toronto, Duke)

Proposal for the Use of a Rapid Cycling Bubble Chamber at NAL.

Diffraction dissociation by 100, 200 GeV protons, pions; missing mass, new particle searches.

III. Neutrino Experiments.

A. Using Counters

#1A D. Cline (Wisc., Penn., Harvard)

Preliminary Version of a Proposal for Neutrino Scattering.

Search for W to 10 GeV/c^2; 4-fermion interactions; deep inelastic ν scattering; σ_{tot} for hydrogen.

#21 B. Barish (Cal Tech., NAL)

Neutrino Physics at Very High Energies.

Search for W to 15 GeV/c^2; deep inelastic ν scattering; σ_{tot} vs energy to 300 GeV for several A.

#38 J. Walker (NAL, ANL, MIT, NW. Pittsburgh)

Production of W's and Study of Deep Inelastic Reactions by Very High Energy Neutrinos.

B. Including the Fifteen-Foot Bubble Chamber.

#9A M. Stevenson (LRL, Hawaii, NW)

Proposal for a High-Energy Neutrino Experiment in the NAL 30m $^3H_2$, D_2 Bubble Chamber.

σ_{tot}; deep inelastic ν scattering with auxiliary γ,μ detectors; elastic form factors; W production.

#20 M. Block (NW)

A Study of Elastic Neutrino Scattering Using a Deuterium Bubble Chamber.

#31 M. Derrick (ANL, Carnegie-Mellon)

Proposal to Investigate $\bar{\nu}_\mu$ Interactions in Hydrogen at NAL.

#44 B. Roe (Mich, NAL)

Proposal to Study Neutrino Interactions with Protons and Neutrons Using the 14-Foot Bubble Chamber at NAL.

#45 F. Nezrick (NAL, Mich.)

Proposal to Study Neutrino Interactions with Protons Using the 14-Foot Bubble Chamber at NAL.

#92 F. Sciulli (Cal Tech., NAL)

A Neutrino Experiment in the NAL $30m^3$ Bubble Chamber Using "Monoenergetic" Neutrinos.

#42 A. Garfinkel (Purdue)

Neutrino Interactions in the Deuterium-Neon 14-Foot Double Bubble Chamber.

Study s, t dependence of ν interactions at high energies in D_2.

#28 W. Fry (Wisc., CERN)

Search for Heavy Leptons; Study of Coulomb-Diffraction Dissociation of Neutrinos; Measurement of the Charge Radius of the ν_μ and the Study of Deep Inelastic ν_μ Scattering in a Ne Bubble Chamber at NAL.

#53 C. Baltay (Columbia, BNL)

Search for the Intermediate Boson, Lepton Pair Production, and a Study of Deeply Inelastic Reactions Utilizing High Energy Neutrino Interactions in Liquid Neon.

IV. Emulsion Experiments.

#90 J. Gierula (Cracow)

Cracow Nuclear Emulsion Exposures.

#91 C-Y Chien (Hopkins, NAL)

Proposal for an Emulsion Experiment to Measure the Energy Dependence of Total Cross Sections and Multiplicities up to 500 GeV/c.

#94 E. Goza (Louisana State Univ.)

100 GeV Pion Interactions In Photographic Emulsion. (A Parasitic Experiment)

#103 D. King (Univ. of Tenn.)

Intra-Nuclear Cascade Produced by 200-GeV Protons.

#105 P. Malhotra and S. Ganguli (Tata Inst.)

A Proposal to Study Some Characteristics of Proton-Nucleon and Proton-Nucleus Collisions at 400 GeV using Nuclear Emulsions.

V. K^{o}'s, etc.

#30 T. Kirk (Harvard, NAL)

Neutral Kaon Regeneration in Liquid Hydrogen From 40 GeV to 200 GeV.

#60 A. Wattenberg (Univ. Of Ill.)

Very High Energy K_L^o Experiments at NAL.

#15 J. Steinberger (Columbia, Univ. of Calif Santa Cruz, Univ. of Chicago, CERN)

Proposal for a Measurement of the Momentum Dependence of the Difference in Forward Scattering Amplitudes of K and $\bar{K}$.

#27 J. Rosen (Rochester)

Proposal to Study the Small Angle Neutral Beam Using a V Spectrometer.

#79 H. Ticho (UCLA)

A Measurement of the Regeneration Parameter in the 100 GeV/c Range.

#82 V. Telegdi (Univ. of Chicago, SLAC, San Diego)

Proposal to Investigate Regeneration of Neutral K-Mesons at Very High Energies.

VI. Monopole Search

#3 P. Eberhard (LRL, SLAC)

Proposal for a Search for Magnetic Monopoles at NAL.

Separation from beam dump target after removal.

#19 D. Tompkins (Georgia)

A Cerenkov Counter Search for Monopole Production by 200-BeV Protons.
A Cernekov Counter Search for Monopole Production by 100-BeV Muons.

#22 G. Collins (VPI, BNL)

Experimental Proposal to the NAL for a Search for Multigamma Events from Magnetic Monopole Pairs.

Search for multi-gamma events from monopole pairs.

#74 R. Fleischer (GE)

Proposal to National Accelerator Laboratory for a Search for Magnetic Monopoles.

Parasitic search using special (plastic?) detectors.

#76 R. Carrigan (NAL)

Search for Magnetic Monopoles Produced at NAL.

Counters and Magnets used to search for free, bound monopoles.

VII. Electron/Photon Experiments

#24 D. Caldwell (Univ. of Calif., Santa Barbara)

Measurement of Inelastic Compton Scattering.

#49 J. Poirier (Notre Dame, NAL)

The Electromagnetic Form Factor of the Charged Pion From π^+e^- Elastic Scattering.

#71 D. Drickey (UCLA, NAL)

A Measurement of the Pion Radius.

#101 B. Gittelman (Cornell, ANL)

Elastic π^+e^- Scattering.

#25 D. Caldwell (Univ. of Calif., Santa Barbara)

Measurement of the Total Photoabsorption Cross Section on H, D, C, Cu, and Pb for Photon Energies from 26 to 125 GeV.

#87 W. Lee (Columbia, Harvard, Hawaii, NAL)

Proposal to Search for Heavy Leptons and Intermediate Bosons from Photon-Nucleon and Photon-Nuclei Collisions.

VIII. Muon Experiments

#5 M. Perl (SLAC)

Muon-Proton Inelastic Scattering.

#26 K. Chen (Princeton, Cornell)

High Momentum Transfer Inelastic Muon Scattering and Test of Scale Invariance at NAL.

#29 R. Wilson (Harvard)

Proposal for μP Scattering Experiment at NAL.

#33 L. Mo (Univ. of Chicago, Penn., NAL)

Preliminary Proposal to Measure the Hadrons in Muon-Proton Inelastic Scattering at the National Accelerator Laboratory.

#98 L. Mo (Univ. of Chicago, Harvard, NAL)

Muon-Proton Inelastic Scattering Experiments at the National Accelerator Laboratory.